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10/527,567

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Tonja R. Sutton

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11/14/2008

The Dow Chemical Company
Intellectual Property Section
P.O. Box 1967
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EXAMINER

LEE, JAEYUN

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

11/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/527,567

Applicant(s)

SUTTON ET AL.

Examiner

JAEYUN LEE

Art Unit

1791

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 4, 5 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-13 and 15-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment filed on 7/29//2008. Claims 1-3, 6-13, and 15-17 remain pending and claims 4-5, and 14 are cancelled.
2. The rejection of claims 1, 6, and 9-13 under 35 U.S.C.102(b) as being anticipated by BETSO et al. (US 5,576,374) as set forth in paragraph 1 on p. 4 of the previous action, has been withdrawn in light of the present amendment.
3. The rejection of claim 8 under 35 U.S.C.102(b) as being anticipated by BETSO et al. (US 5,576,374) as evidenced by KALE et al. (US 5,773,155) as set forth in paragraph 3 on p. 6 of the previous action, has been withdrawn in light of the present amendment.
4. The rejection of claim 16 under 35 U.S.C.102(b) as being anticipated by BETSO et al. (US 5,576,374) as evidenced by ROYS et al. (WO 99/64241) as set forth in paragraph 4 on p. 6 of the previous action, has been withdrawn in light of the present amendment.
5. The rejection of claims 2-3, 7, 14-15 under 35 U.S.C.103(a) as being unpatentable over BETSO et al. (US 5,576,374) as applied to claim 1, and in further view of SARGENT (US 5,401,154) as set forth in paragraph 7 on p. 7 of the previous action, has been withdrawn in light of the present amendment.
6. The rejection of claim 17 under 35 U.S.C.103(a) as being unpatentable over BETSO et al. (US 5,576,374) as applied to claim 1, and in further view of HARA et al.

(US 5,424,020) as set forth in paragraph 8 on p. 9 of the previous action, has been withdrawn in light of the present amendment.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1-3, 6-13, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over BETSO et al. (US 5,576,374) in view of SCHEURING et al. (US 6,419,864) and SARGENT (US 5,401,154).

With respect to claims 1, 7, 13, and 15, BETSO et al. disclose a method of making a fiber reinforced thermoplastic polymer composition and forming a fabricated article therefrom comprising the steps of: introducing into an extruder a thermoplastic polymer, introducing into the extruder a masterbatch comprising an elastomer ('substantially linear ethylene/alpha olefin polymer' (column 3, lines 18-27);
'...Thermoplastic olefins (TPOs) are generally produced from blends of an elastomeric

material...' (column 1, lines 50-51); '...polypropylene impact copolymers... can also be used in the TPO formulations' (column 9, lines 10-14)), plasticating the thermoplastic polymer composition ('melt mixing'), introducing a reinforcing fiber material (...at least one filler...; column 3, line 27; ...fillers includes...glass fiber...; column 6, lines 12-14), extruding a molten fiber reinforced thermoplastic polymer composition and forming a fabricated article (...any convenient method,... Melt mixing directly in the extruder used to make the finished article e.g. the automotive part... such as bumpers, facia, etc.; column 9, lines 31-35) comprising the fiber reinforced thermoplastic polymer composition (TPO formulation containing glass fibers as miscellaneous fillers (column 6, lines 12-14)) (column 9, lines 31-52); wherein the reinforcing fiber material is glass fibers.

Although BETSO et al. disclose thermoplastic olefins (TPOs) are generally produced from blends of an elastomeric material (column 1, lines 50-51); wherein the composition comprise: a thermoplastic polymer, at least one linear or substantially linear ethylene/alpha olefin polymer, and at least one filler (column 3, lines 18-27); wherein fillers include glass fibers (column 6, lines 12-14) as a reinforcing fiber material, it is silent as to introducing a continuous reinforcing fiber material wherein the reinforcing fiber material is a plurality of continuous glass fiber which are fed in a separate stream line and are added to the melt mixed thermoplastic polymer. Also, it is silent as to the thermoplastic polymer and elastomeric material being fed into the extruder in a separate stream line as well. Further, it is silent as to the extruder being a single screw or a twin screw extruder.

One reading BETSO et al. as a whole would have readily appreciated that the reference is not concerned with how the thermoplastic material, elastomeric material and fillers are added into the extruder and what type of extruder being used and what form of reinforcing glass fiber being fed into the extruder (column 9, lines 31-36).

Examiner notes that '...the formulations are compounded by any convenient method, including dry blending the individual components...' (column 9, lines 31-33) does not limit the method of compounding such formulations. Dry blending of components and melt mixing is another way for the method of compounding the formulations and the reference explicitly states that it can be compounded by any convenient method. Therefore, one skilled in the art would have readily appreciated to employ such formulations to be compounded by a conventional method other than dry blending method.

It is known in a method of preparing filled modified and fiber reinforced thermoplastics and twin screw extruder for putting the method into practice art (SCHEURING et al.; title) that the polymer and blend polymer are metered into an extruder in a feeding zone 25 and melted and mixed in a melting zone 27; filler into the extruder in a filler feed zone 31 and mixed and knead in filler incorporation zone (column 3, lines 21-28 and lines 62-65, column 4, lines 1-12; figure 1, items 7 and 9; figure 2, items 25 and 31).

Although SCHURING et al. disclose that the glass fibers are provided into the molten polymer matrix material in a separate stream line ('...fiber feed zone 34 is followed by a fiber incorporated gently...' (column 4, lines 24-29; figure 2); '...inlet port

11 for fiber rovings 12, ... glass fiber rovings...' (column 3, lines 32-33; figure 1), the reference is unclear if the glass fiber is continuously fed or not.

It is known in an a twin screw extruder for compounding a fiber reinforced thermoplastic material and forming parts therefrom art (SARGENT; title, abstract) that the fiber source 19 for feeding a plurality of reinforcing fiber such as glass fibers into the molten thermoplastic material in the barrel is provided (column 3, lines 44-52; figure 1, items 19 and 23) wherein continuous reinforcing fiber can be used (column 6, lines 2-4).

Therefore, it would have been obvious at the time of the Applicant's invention to one of ordinary skilled in the art to specify the materials of BETSO et al. into an extruder with two different feeding inlets to receive each components separately as taught by SCHEURING et al. to form a molten thermoplastic polymer composition of BETSO et al. so that the desired amount of polymer and elastomeric material put into the extruder can be controlled separately.

Also, one skilled in the art would have appreciated to specify a continuous reinforcing fibers such as a plurality of continuous glass fibers in a separate stream line as a reinforcing fiber material as taught by SARGENT into a twin extruder to achieve a homogeneous, molten mass of thermoplastic material having fibers randomly dispersed within as each screw results in a different fiber distribution as taught by SARGENT (column 6, lines 9-11; column 5, lines 64-65).

With respect to claims 2-3, although, BETSO et al. do not explicitly disclose the method as claimed in claims 2-3, it is known in an apparatus for compounding a fiber reinforced thermoplastic material and forming parts therefrom art (SARGENT; title)

discloses the step of i) extruding the molten fiber reinforced thermoplastic polymer composition through a die forming a continuous extrusion of heated fiber reinforced thermoplastic polymer composition having a desired cross sectional shape (column 2, lines 30-34), ii) conveying the continuous extrusion of heated fiber reinforced thermoplastic polymer composition to a cutter, iii) cutting the continuous extrusion into a plurality of performs (column 2, lines 45-50), and iv) conveying the performs away from the cutter into a compression mold (column 2, lines 54-59).

Therefore, it would have been obvious at the time of the Applicant's invention to one of ordinary skilled in the art to include extruding the molten fiber reinforced thermoplastic polymer composition of BETSO et al. as modified by SCHEURING et al. and SARGENT through an extrusion die forming a continuous extrusion having desired cross section, conveying the continuous extrusion to a cutter, cutting the continuous extrusion into a plurality of performs, and conveying the performs away form the cutter into a compression mold as taught by SARGET in the method of BETSO et al. as modified by SCHEURING et al. and SARGENT to improve cost competitiveness since it eliminates the extra step of reheating a reinforced thermoplastic perform prior to the molding step as taught by SARGENT (column 2, lines 60-63).

With respect to claim 6, BETSO et al. as modified by SCHEURING et al. and SARGENT disclose extruding the molten fiber reinforced thermoplastic polymer composition through an extrusion die having a desired shape (column 9, lines 31-36) and fabricating articles via profile extrusion (column 9, lines 38-40 and line 49).

Therefore, extruding through a profile extrusion die having a desired shape is inherent to profile extrusion.

With respect to claim 8-11, BETSO et al. as modified by SCHEURING et al. and SARGENT disclose wherein the elastomer is a polyolefin elastomer (substantially linear ethylene/alpha olefin polymer); wherein the elastomer is a linear ethylene polymer comprising ethylene and a C3 to C20 alpha olefin; wherein the elastomer is a linear ethylene polymer comprising ethylene and an alpha olefin selected group consisting of propene (propene is the IUPAC name for propylene), butane, hexene, or 1-octene; wherein the elastomer is a substantially linear polyethylene polymer comprising ethylene and 1-octene (column 3, lines 25-26; column 5, lines 1-15; an ethylene polymer is inherently a polyethylene).

The examiner notes that '...the thermoplastic olefins (TPOs) are generally produced from blends of an elastomeric material such as EPM or EPDM,...' (column 1, lines 50-52); wherein '...polypropylene impact copolymers can also be used in the TPO formulations...' (column 9, lines 10-14); wherein '...substantially linear ethylene/alpha olefin polymers or copolymers for use in impact modifying the selected thermoplastic or polyolefin... are interpolymers of ethylene with at least one C3-C20 alpha olefin... and 1-octene are especially preferred...' (column 5, lines 1-15). Therefore, it is inherently disclose that the substantially linear ethylene/alpha olefin polymer (polyolefin) is an elastomer.

With respect to claim 12, BETSO et al. as modified by SCHEURING et al. and SARGENT disclose wherein the masterbatch further comprises talc, clay, calcium

carbonate (column 5, line 66 to column 6, line 1), colorants, and antioxidant or an antistat (column 6, lines 30-33).

With respect to claim 16, BETSO et al. as modified by SCHEURING et al. and SARGENT disclose wherein the fabricated articles include automotive bumpers, facia, wheel covers and grilles, wire, cable operations, household and personal articles including for example freezer containers etc. (column 1, lines 59-61; column 9, lines 49-52).

With respect to claim 17, although BETSO et al. do not explicitly disclose the fabricated article is a golf cart underbody, it discloses the automotive facia which is vehicle underbody. Since the golf cart underbody is a vehicle underbody, it would have been obvious at the time of the Applicant's invention to one of ordinary skill in the art to incorporate the material and the method of BETSO et al. as modified by SCHEURING et al. and SARGENT to fabricate the vehicle underbody such as golf cart underbody.

Response to Arguments

10. Applicant's arguments with respect to claims 1-3, 6-13, and 15-17 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's remark on p.5-6 that the reference, BETSO, discloses all of the ingredients comprising his impact-modified filled thermoplastic composition are dry blended together prior to melt mixing and that it does not teach or suggest a separate stream wherein a filler is added to the melt mixed thermoplastic polymer, examiner notes that '...the formulations are compounded by any convenient method, including dry blending the individual components...' (column 9, lines 31-33) does not

limit the method of compounding such formulations. Dry blending of components and melt mixing is another way for the method of compounding the formulations and the reference explicitly states that it can be compounded by any convenient method. Therefore, one skilled in the art would have readily appreciated to employ such formulations to be compounded by a conventional method other than dry blending method wherein separate stream of filler added to the melt mixed thermoplastic polymer as well as continuous reinforcing fiber being added independently of the thermoplastic polymer as discussed above in paragraph 9 (BETSO et al. in view of SCHEURING et al. and SARGENT).

In response to applicant's argument on p. 6 that the glass fibers are to be chopped glass fibers and not the continuous reinforcing fiber since it is a dry blending method. Again, this is incorrect as discussed above that the reference (BETSO et al.) does not limit to the dry blending method wherein any convenient method can be used to compound the formulation and that glass fibers can be a continuous glass fibers being fed into a separate stream (as discussed above in paragraph 9 above, BETSO et al. in view of SCHEURING et al. and SARGENT; with respect to claims 1, 7, 13, and 15).

In response to applicant's argument on p. 7-8 that the rejection made under 35 U.S.C. 102(b) as being anticipated by BETSO as evidenced by KALE et al. regarding the substantially linear ethylene polymer used in the present invention is an elastomer is not a valid novelty and also, BETSO et al. and SARGENT do not disclose an elastomer

masterbatch, BETSO et al. itself teach that the substantially linear ethylene polymer is an elastomer as discussed above in paragraph 9 (with respect to claims 8-11).

In response to applicant's argument on p. 9 that the golf cart are not cars; golf cart underbodies are not the same as automobile exterior panels, structural parts, and battery trays, although BETSO et al. do not explicitly disclose the fabricated article is a golf cart underbody, it discloses the automotive fascia which is vehicle underbody wherein golf cart underbody is a vehicle underbody. Therefore, it would have been obvious at the time of the Applicant's invention to one of ordinary skill in the art to incorporate the material and the method of BETSO et al. as modified by SCHEURING et al. and SARGENT to fabricate the vehicle underbody such as golf cart underbody.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAEYUN LEE whose telephone number is (571)270-5114. The examiner can normally be reached on Monday thru Friday 8am to 5pm est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff H. Aftergut/
Primary Examiner, Art Unit 1791

/JL/
11/7/2008